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PATENT SPECIFICATION

Inventors: HENRY VINCENT BAMFORD and RICHARD HAWTHORN BAMFORD

810,775

Date of filing Complete Specification: March 1, 1957.

Application Date: March 2, 1956. *No. 6534/56.*

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COMPLETE SPECIFICATION

ERRATUM

SPECIFICATION No. 810,775

Page 2, line 82, *for* "Figure 1." *read* "Figure."

THE PATENT OFFICE
7th May, 1959

arrangement being such that when the metering wheel has completed a certain length of travel the tying mechanism is actuated to tie the bale.

Such actuation of the tying mechanism is usually accomplished by a lever arm connected to the metering wheel which operates a trip lever, this trip lever normally contacting the nose of a spring clutch on the knotter drive member of the tying mechanism, the arrangement being such that when the trip lever under the motion transmitted to it from the metering wheel is displaced out of contact with the nose aforesaid of the spring clutch, the latter connects this knotter drive member to a revolving member driven from the power-source of the machine and the knotter drive member makes one complete revolution to actuate the tying mechanism after which the nose of the spring clutch again contacts the trip lever and the knotter drive member is disconnected from the said revolving member, the tying operation having been completed.

The invention may be applied to baling machines of the stationary type or it may be

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lever arm the effective travel of the metering wheel for a given displacement of the lever-arm may be increased or decreased with corresponding variation in the length of the bale.

In practice it has been found that with these constructions, bales of uneven lengths are sometimes made owing to the spring clutch not operating immediately the trip lever is disconnected from the nose and when this occurs one bale is oversize and the next is smaller than normal; and the primary object of the present invention is to avoid making these smaller size bales.

According to the present invention the metering wheel is connected to a rack pinion which is adapted to engage with a rack provided on or otherwise connected to a trip element, said rack being adapted to be maintained in releasable engagement with the rack pinion by means of a retaining member which is releasably loaded into engagement with the trip element in such a manner as to retain the rack thereof releasably in engagement with the rack pinion, the trip element at a position thereon remote from the rack being connected

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COMPLETE SPECIFICATION

Improvements in Agricultural and like Balers

We, BAMFORDS LIMITED, a British Company, of Leighton Ironworks, Uttoxeter, in the County of Stafford, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to machines for baling hay, straw or like compressible materials, of the type which incorporates a baling chamber, means for compressing therein the crop or like materials into bale form together with automatically actuated means for tying the bales actuated when a bale of predetermined size has been formed under the operation of a metering wheel mounted for rotational movement in relation to the baling chamber, this metering wheel having peripheral projections which contact the bale as it progresses along the baling chamber, the arrangement being such that when the metering wheel has completed a certain length of travel the tying mechanism is actuated to tie the bale.

Such actuation of the tying mechanism is usually accomplished by a lever arm connected to the metering wheel which operates a trip lever, this trip lever normally contacting the nose of a spring clutch on the knotter drive member of the tying mechanism, the arrangement being such that when the trip lever under the motion transmitted to it from the metering wheel is displaced out of contact with the nose aforesaid of the spring clutch, the latter connects this knotter drive member to a revolving member driven from the power-source of the machine and the knotter drive member makes one complete revolution to actuate the tying mechanism after which the nose of the spring clutch again contacts the trip lever and the knotter drive member is disconnected from the said revolving member, the tying operation having been completed.

The invention may be applied to baling machines of the stationary type or it may be applied to machines of the pick-up type such as that described generally in the specification of our prior Patent No. 755,857.

The peripheral projections on the metering wheel may consist of a number of spikes, fingers or the like spaced around the wheel, and in such an arrangement it is common practice for adjustment for length of bale to be effected by adjusting the spikes, fingers or the like projections of the metering wheel so that the effective radius of the wheel is increased and this has the effect of increasing the distance of travel of the outer periphery of the metering wheel for each revolution thereof and thus increasing the length of the bale.

It is also known to drive the lever arm from the metering wheel through a crank drive incorporating a system of gear wheels so that by using gears of different ratios for driving the lever arm the effective travel of the metering wheel for a given displacement of the lever-arm may be increased or decreased with corresponding variation in the length of the bale.

In practice it has been found that with these constructions, bales of uneven lengths are sometimes made owing to the spring clutch not operating immediately the trip lever is disconnected from the nose and when this occurs one bale is oversize and the next is smaller than normal; and the primary object of the present invention is to avoid making these smaller size bales.

According to the present invention the metering wheel is connected to a rack pinion which is adapted to engage with a rack provided on or otherwise connected to a trip element, said rack being adapted to be maintained in releasable engagement with the rack pinion by means of a retaining member which is releasably loaded into engagement with the trip element in such a manner as to retain the rack thereof releasably in engagement with the rack pinion, the trip element at a position thereon remote from the rack being connected

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to a trip lever for actuating a clutch drive to the tying mechanism, the said retaining member also being connected to operating means associated with the tying mechanism, the arrangement being such that when the trip lever is operated by the appropriate movement of the metering wheel, to actuate the tying mechanism, the retaining member displaces the trip element rack out of contact with the rack pinion thus allowing the trip element, under spring pressure, to make the return movement, and said rack being self disengaging from the rack pinion on completion of a predetermined rotational movement by the pinion so as thereby to ensure that any further movement which may be transmitted by the advancing bale to the metering wheel is not transmitted to the trip element.

We thereby effectively ensure in practice that the formation of an oversize bale with corresponding abnormally large rotational movement of the metering wheel is not followed by a corresponding reduction in the size of the next bale to be formed.

In other words, with the present invention we provide an arrangement in which each time the rack is displaced by the rotation of the metering wheel in a direction to effect ultimate actuation of the clutch drive to the tying mechanism, the rack is invariably displaced by a distance corresponding to the desired size of the bale to be formed and in the event of any further rotational movement of the metering wheel occurring arising from the formation as happens from time to time in practice, of an oversize bale this further movement is not transmitted to the other parts of the mechanism embodied in the present invention so as to displace these into a position which would necessitate their further movement prior to the tying of the next successive bale being less than the correct movement and thus undesirably effect premature engagement of the clutch drive to the tying mechanism.

A further object of the present invention is to provide a more rapid and simpler method of adjusting the baler to accommodate different sizes of bale length, without it being necessary to change over gear wheels, or to adjust the spikes or fingers of the metering wheel in the manner referred to in connection with the known arrangement above mentioned.

With this latter object in view according to a subsidiary feature of this invention, we provide an adjustable lost motion connection between the trip element and the trip lever.

Such adjustable lost motion connection preferably consists of a slot formed in the trip element which slot engages a pin on the trip lever.

The trip element may be provided with an adjustable stop so that the amount of lost motion on the trip element may be controlled thus determining the size of the bale.

The trip lever may be biased in a direction towards the nose on the spring clutch of the knotter drive member whilst the trip element may be biased in a direction away from the trip lever.

The invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a perspective view of part of a pick-up baling machine embodying the present invention.

Figure 2 is a side elevation to an enlarged scale of part of the machine depicted in Figure 1, illustrating the rack in engagement with the rack pinion for transmitting drive from the metering wheel to the trip lever in the course of formation of a complete bale.

Figure 3 is a plan of the construction depicted in Figure 1.

Figure 4 is a view of part of the construction depicted in Figure 3 illustrating the position of the parts when the rack has completed its operative stroke so as to be just disengaged from the rack pinion.

Figure 5 is a view similar to Figure 4 but showing the position of the parts during the return movement of the rack clear of the rack pinion.

Referring firstly to Figure 1 of the drawings the invention is depicted as applied to a baling machine for baling hay, straw or similar agricultural material, which baling machine is of the pick-up type and as illustrated is similar to the machine the subject of our prior patent specification aforesaid.

Such machine comprises a baling chamber 10 into which the material to be baled is fed and within which the material is pressed into bale form being thereby displaced along the length of the baling chamber from left to right in the drawing of Figure 1, the bales being tied by tying mechanism of conventional form illustrated at 11 and power driven in the known way through the medium of a normally disengaged clutch depicted at 12, which clutch is of a known spring type embodying a nose 13 which is normally engaged by the upper end of trip lever 14 pivoted at 15 to the exterior of the baling chamber, the arrangement being such that when the trip lever is in the illustrated position in engagement with the nose 13 of clutch 12, the latter is disengaged, while when the trip lever is pivoted to the left in Figure 2 it is disengaged from the clutch nose 13 and the clutch under its own spring loading engages to transmit the drive to the tying mechanism and also to the link 16 which drives the twine or wire feeding needles to effect the tying of a complete bale.

The trip lever 14 is loaded by spring 17 into retaining engagement with clutch nose 13.

Spaced rearwardly of the baling machine in relation to the tying mechanism 11 is a metering wheel 18 mounted for rotation about a horizontal axis on the upper side of the baling chamber 10, the wheel being provided in the known manner with a number of circumferen-

tially spaced peripheral projections 19 in the form of teeth which are adapted to engage with the material as it advances rearwardly through the baling chamber in bale form so as thereby to rotate the metering wheel in an anti-clockwise direction viewed in Figure 2, the teeth aforesaid projecting through the customary longitudinally extending slot-like opening at the top of the baling chamber.

The shaft carrying this metering wheel carries also rack pinion 20 which is adapted to engage with the under side of toothed rack 21 mounted on the rear end of a trip element in the form of a rod 22 so as to form an integral extension of this trip rod.

The forward end of the trip rod 22 is connected to a forked portion 23 the arms 24 of which are each formed with a longitudinally extending slot 25 in each of which slots works the outer end of a pin 26 mounted on the trip lever 14 intermediate its two ends, which trip lever extends between the two arms of the forked portion 23 with the ends of the pin 26 projecting on opposite sides of the lever.

The arrangement is such that there is thereby provided a lost motion connection between the trip rod 22 and the trip lever 14, permitting of the trip rod 22 being displaced to the left in the drawing consequent on the engagement of its rack 21 with the rack pinion 20 rotated by the turning of the metering wheel, so that no motion is transmitted by the trip rod to the trip lever during the continued rotation of the metering wheel by the advancing bales until the righthand or inner end 27 of each of the slots 25 engages with the corresponding end of the pin 26, whereupon the trip lever 14 is swung against the loading of spring 17 to disengage it from the clutch nose 13 thereby permitting of the engagement of clutch 12 under its own spring loading, to initiate the bale tying operation.

The amount of relative movement permitted by this lost motion connection between the trip rod and the trip lever is adjustable by mounting on the free end of each of the arms 24 a threaded plate 28 in which works an adjusting screw 29, the inner end of which through abutment roller 30 slidable longitudinally of the slots 25 is adapted to engage with the adjacent edge of the trip lever 14, and considering the trip lever in its illustrated operative position it will be appreciated that the effect of this adjustment is to vary the distance by which the trip rod must be displaced by the metering wheel before the tying mechanism operates so as thereby to effect predetermined variation in the length of each bale to be formed.

The rack 21 at its outer end remote from the trip rod 22 has its operative surface cut away or recessed at 31 (see Figure 2) the arrangement being such that as soon as the trip rod 22 has been displaced to the left by a distance sufficient to disengage the trip lever 14 from the nose 13, the rack pinion 20 displaces the outermost tooth 32 of the rack clear of the pinion as shown in Figure 4 bringing the adjacent recessed part 31 of the rack above the pinion, i.e. the rack 21 is self-disengaging from the rack pinion 20 so as to permit of the latter continuing to rotate if required consequent on further advancement of the bale material without any further movement being transmitted to the rack and its associated trip rod.

In other words at the initiation of the tying operation the parts always move into the same position irrespective of any continued movement of the metering wheel arising from an excess of material in the baling chamber resulting in the production of an oversized bale, and such oversize bale production will therefore not be followed by the immediate subsequent formation of a bale of less than the correct length.

The rack 21 is retained in operative engagement with the rack pinion 20 during its forward movement by the pinion, by means of a retaining member 33 in the form of a roller which is mounted on one side of a retaining arm 34 of curved configuration pivoted at 35 to a lug 35a on the baling chamber which lug carries also the metering wheel shaft, and this retaining arm 34 is loaded by spring 36 to maintain the retaining roller 33 releasably in retaining engagement with the rack 21.

The outer end of the retaining lever 34 has a lost motion connection 37 to one end of a link 38, the opposite end of which is pivoted at 39 to the lower end of a dependent arm 40 on a transversely extending shaft 41 known as the " tracer shaft " which forms part of the tying mechanism and which is oscillated during each tying operaton to displace the link 38 to the left in Figure 2.

The outer end of the rack 21 adjacent the recess 31 is formed with a forked bracket 42 so as to provide a forwardly extending open ended slot 43 which is adapted as shown in Figure 4 to receive and engage with the retaining roller 33 when the rack 21 has completed its forward or operative movement and become disengaged from the rack pinion 20.

The arrangement is such that when the tracer shaft 41 now turns consequent on the operation of the tying mechanism to displace the link 38 to the left, the lost motion at connection 37 is taken up and the retaining arm 34 is swung upwardly about its pivot 35 so that the roller 33 engages with the upper side of the slot 43 to lift the rack 21 clear of the rack pinion 20 as shown in Figure 5 and the rack being now disengaged from the pinion 20 is consequently free to move rearwardly, i.e. to the right in Figure 2 under the loading of trip rod return spring 44. This spring 44 extends in a direction upwardly as well as rearwardly from its point of connection 45 to the trip rod 22 up to its connection 46 to the retaining lever 34, and in consequence during

this return movement of the rack 21 and trip 22, the upper surface of the rack is maintained in contact with the still raised retaining roller 33 with the rack teeth clear of the rack pinion during this return movement of the rack which continues until the abutment roller 30 on the forked portion 23 of the trip rod has re-engaged with the forward edge of the trip lever 14 which on the commencement of the return movement of the trip rod 22 will have swung back into its illustrated position under the loading of spring 17.

Meanwhile the tying mechanism has completed its operation thus bringing the tracer shaft 41 back to its initial position and displacing link 38 to the position illustrated in Figure 2 thereby swinging retaining lever 34 downwardly to bring the now fully returned rack 21 once again into full engagement with the rack pinion 20 so that the parts all return to the position depicted in Figure 2 and the trip rod 22 commences to move forwardly again to commence the next cycle of operations under the continued rotation of the metering wheel 18.

The retaining lever 34 is connected by chain 47 to a bale counter 48 so as thereby in the known manner to indicate the total number of bales tied.

It should be understood that instead of using a slotted lever for the lost motion connection with the trip lever, other arrangements may be used such as a telescopic construction.

WHAT WE CLAIM IS:—

1. A baling machine of the type specified characterised in that the metering wheel is connected to a rack pinion which is adapted to engage with a rack provided on or otherwise connected to a trip element, said rack being adapted to be maintained in releasable engagement with the rack pinion by means of a retaining member which is releasably loaded into engagement with the trip element in such a manner as to retain the rack thereof releasably in engagement with the rack pinion, the trip element at a position thereon remote from the rack being connected to a trip lever for actuating a clutch drive to the tying mechanism, the said retaining member also being connected to operating means associated with the tying mechanism, the arrangement being such that when the trip lever is operated by the appropriate movement of the metering wheel, to actuate the tying mechanism the retaining member displaces the trip element rack out of contact with the rack pinion thus allowing the trip element, under spring pressure, to make the return movement, and said rack being self disengaging from the rack pinion on completion of a predetermined rotational movement by the pinion so as thereby to ensure that any further movement which may be transmitted by the advancing bale to the metering wheel is not transmitted to the trip element.

2. A baling machine according to Claim 1 wherein an adjustable lost motion connection is provided between the trip element and the trip lever.

3. A baling machine according to Claim 2 wherein the adjustable lost motion connection comprises a slot provided in a portion of the trip element in which slot engages a projection on the trip lever.

4. A baling machine according to Claim 3 in which the slotted portion of the trip element is provided with an adjusting screw adapted for pressure engagement with part of the trip lever so as thereby to vary the effective length of the slot.

5. A baling machine according to any of the preceding claims wherein the rack at its outer end remoted from the trip lever is provided with a recess to enable it to be self disengaging from the rack pinion.

6. A baling machine according to any of the preceding claims wherein the retaining member comprises a roller mounted on a retaining arm, one end of which is supported for pivotal movement and the opposite end of which is connected to the tying mechanism, the said roller being adapted to engage within an opening provided in a part associated with the rack when the rack has become disengaged from the rack pinion on the completion of its operative movement, the arrangement being such that the retaining arm is then pivoted under the operation of the tying mechanism to displace the roller thereon and thereby displace the rack itself clear of the rack pinion to permit of its return with the trip element under the spring pressure.

7. A baling machine according to Claim 6 wherein said retaining roller receiving opening is formed by a forked bracket provided at the end of the rack which is remote from the trip lever.

8. In a baling machine of the type specified means for controlling the operation of the tying mechanism from the rotation of the metering wheel, said means being constructed substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

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PROVISIONAL SPECIFICATION

Improvements in Agricultural and like Balers

We, BAMFORDS LIMITED, a British Company, of Leighton Ironworks, Uttoxeter, in the County of Stafford, do hereby declare this invention to be described in the following statement:—

This invention relates to machines for baling hay, straw, or like compressible materials, of the type which incorporates a baling chamber, means for compressing therein the crop or like materials into bale form together with automatically actuated means for tying the bales.

The invention may be applied to baling machines of the stationary type or it may be applied to machines of the pick-up type such as that described generally in our co-pending Application No. 31333/53.

In such machines the size of the bale is determined by a metering wheel which is a wheel consisting of spikes or fingers which spikes or fingers contact the bale as it progresses along the baling chamber, the arrangement being such that when the metering wheel has completed a certain length of travel the tying mechanism is actuated to tie the bale and this is usually accomplished by a lever arm connected to the metering wheel which operates a trip lever, this trip lever normally contacting the nose of a spring clutch on the knotter drive member of the tying mechanism, the arrangement being such that when the trip lever under the motion transmitted to it from the metering wheel is displaced out of contact with the nose aforesaid of the spring clutch the latter connects this knotter drive member to a revolving member driven from the power-source of the machine and the knotter drive member makes one complete revolution to actuate the tying mechanism after which the nose of the spring clutch again contacts the trip lever and the knotter drive member is disconnected from the said revolving member, the tying operation having been completed.

It is common practice for the adjustment for length of bale to be effected by adjusting the spikes or fingers of the metering wheel so that the effective radius of the wheel is increased and this has the effect of increasing the distance of travel of the periphery of the metering wheel for each revolution thereof and thus increasing the length of the bale.

It is also known to drive the lever arm from the metering wheel through a crank drive incorporating a system of gear wheels so that by using gears of different ratios for driving the lever arm the effective travel of the metering wheel for a given displacement of the lever arm may be increased or decreased with corresponding variation in the length of the bale.

In practice it has been found that with these constructions bales of uneven lengths are sometimes made owing to the spring clutch not operating immediately the trip lever is disconnected from the nose and when this occurs one bale is oversize and the next is smaller than normal; and the primary object of the present invention is to avoid making these smaller size bales.

According to the present invention the metering wheel is connected to a rack pinion which is adapted to engage with a rack provided on or otherwise connected to a trip rod or other trip element, said rack being adapted to be maintained in releasable engagement with the rack pinion by means of a roller or other retaining member which is spring or otherwise loaded into engagement with the trip element in such a manner as to retain the rack thereof releasably in engagement with the rack pinion, the trip element at a position thereon remote from the rack being connected to the trip lever, the said spring or other loaded roller or the equivalent also having a connection with operating means associated with the tying mechanism, the arrangement being such that when the trip lever is operated by the appropriate movement of the metering wheel, to actuate the tying mechanism the roller or other retaining member displaces the trip element rack out of contact with the rack pinion this allowing the trip rod, under spring pressure, to make the return movement.

Preferably the said rack is self disengageable from the rack pinion on completion of a predetermined movement so as thereby to ensure that no further movement which may be transmitted by the bale to the metering wheel is in turn transmitted to the trip lever, an arrangement which effectively ensures that the formation of an oversize bale with corresponding displacement of the metering wheel is not accompanied with a corresponding reduction in the size of the next bale to be formed.

Preferably there is a lost motion connection between the trip rod or other trip element and the trip lever.

A further object of the present invention is to provide a more rapid and simpler method of adjusting the baler to accommodate different sizes of bale length, without it being necessary to change over gear wheels, or to adjust the spikes or fingers of the metering wheel in the manner referred to in connection with the known arrangement above mentioned.

With this latter object in view according to a subsidiary feature of this invention, we provide an adjustable lost motion connection between the trip rod or other trip element and the trip lever.

Such adjustable lost motion connection pre-

ferably consists of a slot formed in the trip rod or other element which slot engages a pin on the trip lever.

The trip rod or other element may be provided with an adjustable stop so that the amount of lost motion on the trip rod may be controlled thus determining the size of the bale.

The trip lever may be biased in a direction towards the nose on the spring clutch of the knotter drive member whilst the trip rod or other element may be biased in a direction away from the trip lever.

In carrying out the preferred construction of our invention we provide a baling machine of the pick-up type and this may be similar to that described generally in our co-pending Application No. 31333/53 (Serial No. 755,857).

In such a machine a baling chamber is provided this being of rectangular formation and into this baling chamber the crop is fed transversely from a platform on to which it has been elevated by a pick-up reel.

An aperture is provided in the side of the baling chamber and through this aperture the crop is moved by a conveyor which may consist of an auger this auger lying transversely across the platform whilst co-operating with the auger we may employ an oscillatory transfer member which receives the crop from the delivery end of the auger and feeds it through the aperture in the baling chamber where it is compressed by a reciprocating ram operated by a crank or similar means.

Thus the bale is progressively built up and at the same time moves through the baling chamber by the impact of the ram.

On the exterior of the baling chamber, and in this preferred construction, at the top of same a metering wheel is mounted this wheel having a number of spikes or fingers which are adapted to project through an opening in the baling chamber and contact the bale as it goes through.

The metering wheel is mounted on a shaft which is rotated by the same, this shaft having mounted thereon a rack pinion, the shaft being rotatably mounted in a bearing fixed to the frame of the baling chamber.

The rear part of the trip rod is provided on its underside with a rack surface with which the rack pinion is adapted to engage in order to move the trip rod in a horizontal direction and to maintain the trip rod in contact with the rack pinion a spring pressed roller is provided, this roller being mounted on a curved lever pivotally mounted at its upper end to the machine frame.

The rear end of the trip rod has a forked bracket formed on its upper side and in this the roller is adapted to engage when the trip rod has completed its forward movement so that when the roller is raised it raises the trip rod out of contact with the rack pinion.

The forward end of the trip rod is preferably flat in cross-section with its broader side facing the trip lever to which it is connected by a pin on the trip lever engaging an elongated horizontal slot in the trip rod.

A spring is fitted to the upper end of the trip lever and attached to the frame of the machine, this spring being in tension and tending to hold the trip lever in contact with the spring clutch of the knotter drive member whilst another spring tends to hold the trip rod away from the trip lever.

The travel of the trip rod is limited by a stop, this stop being adjustably mounted in the slot in the trip rod to regulate the size of the bale.

The lower end of the curved lever is connected by a link to a downwardly depending lever attached to a shaft operating the twine fingers.

The operation of the metering device is as follows:—

Whilst the bale is being formed the metering wheel rotates the rack pinion and the rack surface of the trip rod, being held in close contact with the rack pinion by the spring pressure of the roller, travels along in the direction of the trip lever but owing to the slotted formation of the trip rod the trip lever is not actuated until the pin on the trip lever actually contacts the end of the slot.

When the bale is formed and the trip rod has completed its forward movement the rack pinion falls into a recess having a smooth surface where although it may continue to rotate under the action of the metering wheel it does not produce any further forward movement of the trip rod.

When the trip lever is actuated the nose of the spring clutch on the knotter drive member is released locking the latter with a rotating member driven by one of the shafts of the machine and this actuates the tying mechanism.

When the tying mechanism comes into operation the lever on the shaft which actuates the twine fingers makes an upward movement this pulling on the link connecting it to the curved lever raising the latter together with the roller which is mounted on the same.

As the roller is now in engagement with the fork on the trip rod this also is raised out of contact with the rack pinion which causes it to move backwardly under the tension of the spring which connects it to the upper part of the curved lever, this movement being limited by the stop in the slot of the trip rod when the tying operation, having been completed, the downwardly depending lever associated with the twine fingers allows the curved lever to descend bringing the roller again into contact with the trip rod and pressing the same downwardly into contact with the rack pinion so that the rotation of the metering wheel then becomes effective in moving the trip rod in a forward direction.

A bale counting mechanism may be mounted to the rear of the link attached to the curved lever, and this bale counting mechanism may have a lever connected to the curved lever by a chain or other flexible connection so that each time the curved lever makes an upward movement the lever on the bale counting mechanism makes a corresponding movement to operate the latter.

It should be understood that instead of using a slotted lever for the lost motion connection with the trip lever, other arrangements may be used such as a telescopic construction.

It will be seen that with the foregoing arrangement although the action of the metering wheel is continuous its effective action on the metering device is not continuous but is in timed relation with the tying mechanism thus preventing the production of undersized bales.

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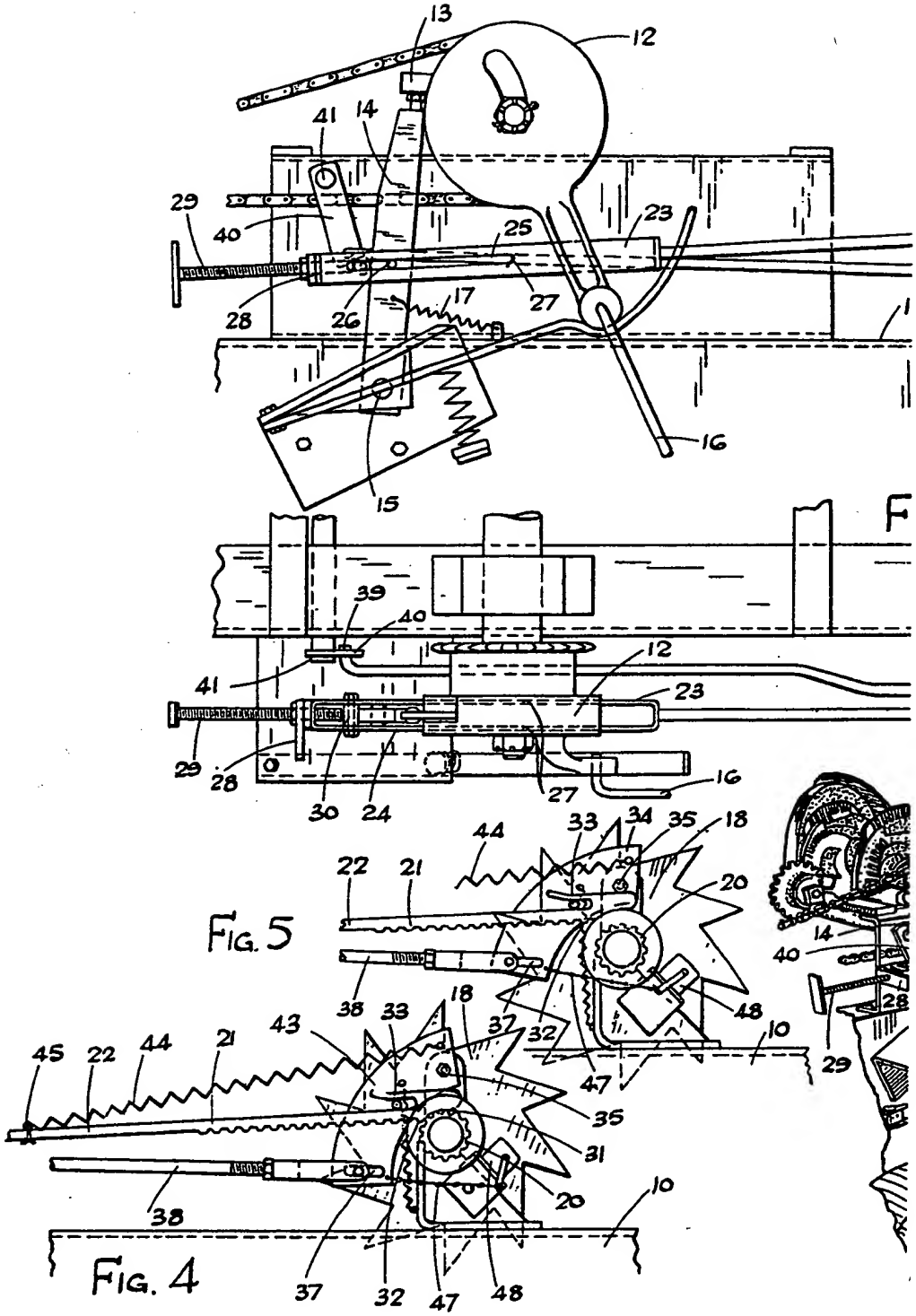
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FIG. 5

FIG. 4

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COMPLETE SPECIFICATION

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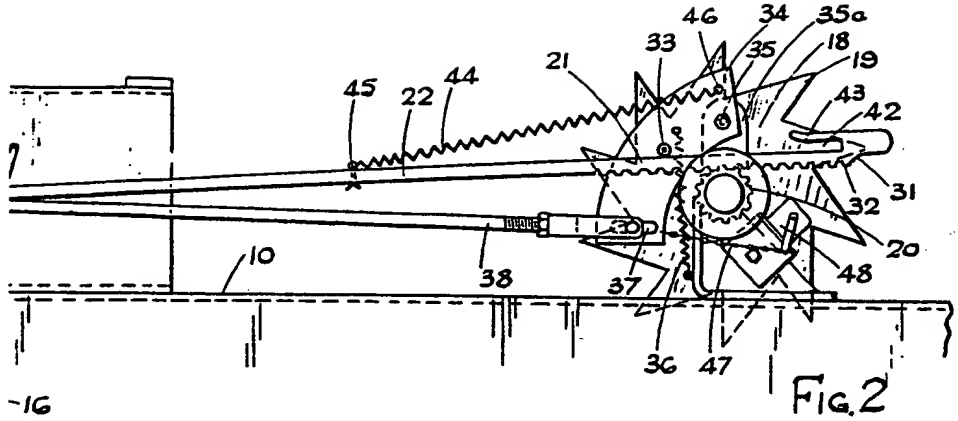
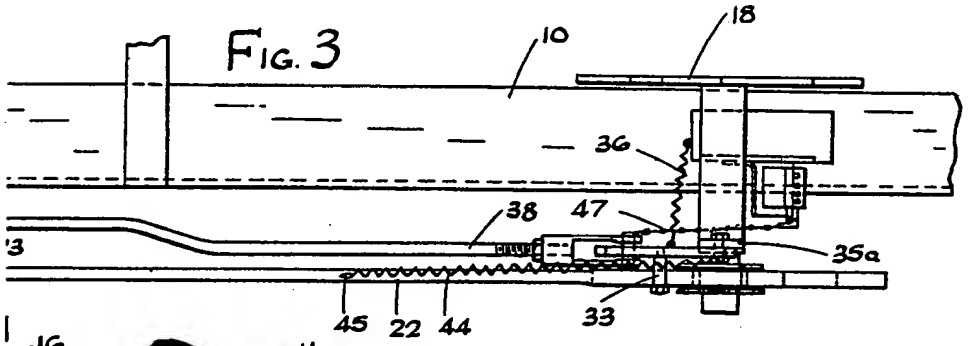


FIG. 2

FIG. 3



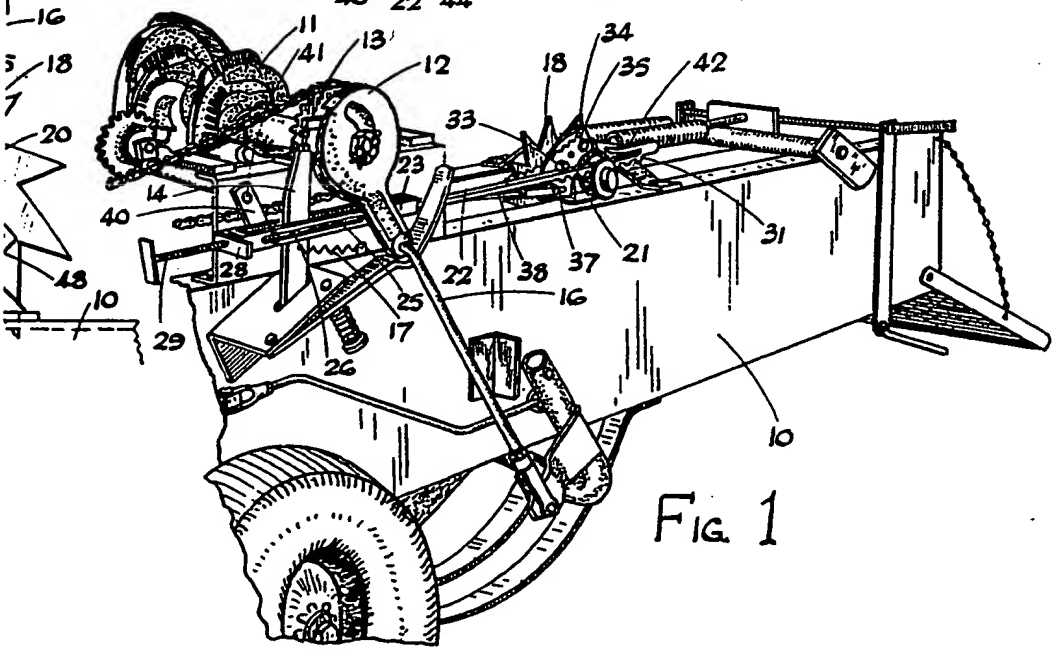


FIG. 1

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COMPLETE SPECIFICATION

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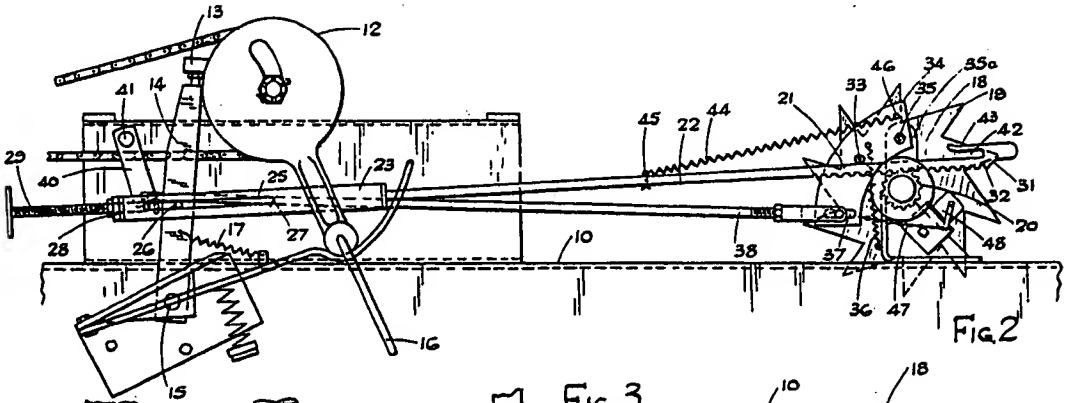

FIG. 2

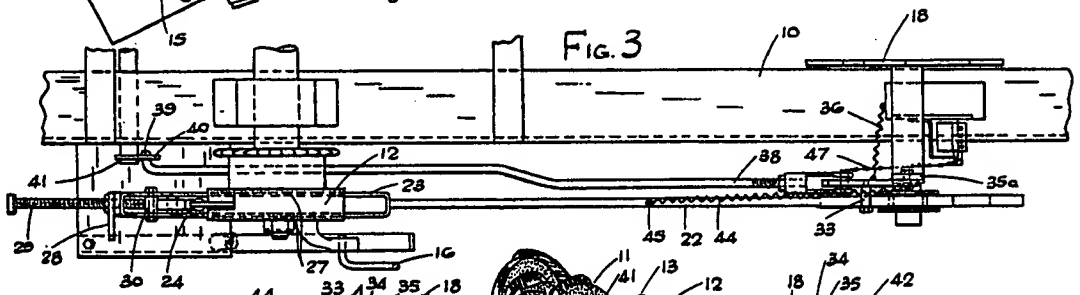

FIG. 3

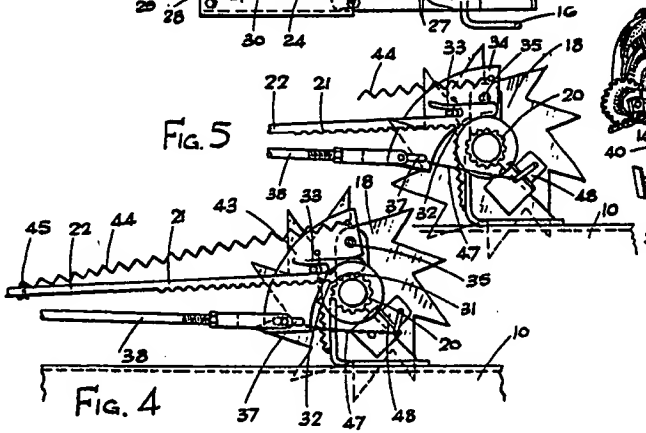

FIG. 4

FIG. 5

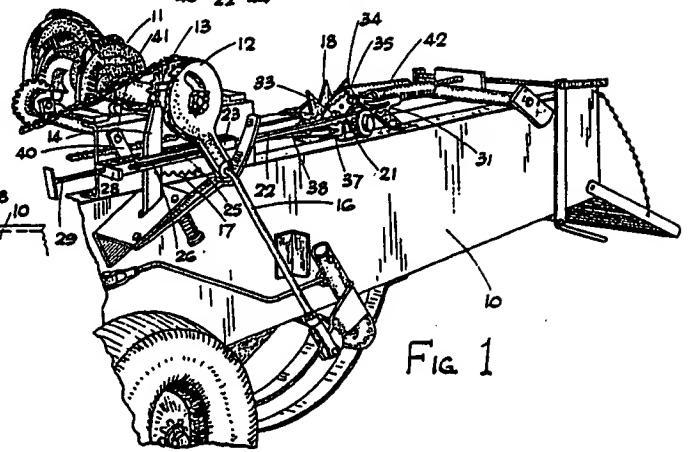

FIG. 1